

## **ABSTRACT**

The present invention generally relates to methods used for fabricating integrated circuits ("ICs"), using Ruthenium ("Ru") and its oxides and/or Iridium ("Ir") and its oxides as the diffusion barrier to contain and control copper ("Cu") interconnects. The invention also covers ICs incorporating such materials in the diffusion barrier to contain and control the Cu interconnects. The present invention advantageously provides better integration and fabrication of advanced IC chips with sub-micron features.